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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/517,199

12/08/2004

Giacinto Zilioli

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5680

23117 7590 12/18/2006
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EXAMINER

CLEMENTE, ROBERT ARTHUR

ART UNIT

PAPER NUMBER

1724

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

12/18/2006

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/517,199

Applicant(s)

ZILIOI ET AL.

Examiner

Robert A. Clemente

Art Unit

1724

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-7,9-11,13,14,16 and 17 is/are rejected.
- 7) ☒ Claim(s) 3,8,12,15,18 and 19 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____ | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: The sections of the specification are not clearly labeled with headings, such as "Background of the Invention", "Brief Description of the Figures", etc. In page 1 line 3, "to chromatography column" should be --to a chromatography column--. In page 1 line 7, "known designed" should be changed; the examiner suggests --known to be designed--. In page 6 line 4, "also as regards production costs" would be clearer as --also in regards to production costs--.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4 – 7, 9 – 11, 13, 14, 16, and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by International Publication No. WO 02/40988 to the Applicant.

The Applicant's prior publication teaches a chromatography column assembly, of the type comprising at least a capillary column, at least a tubular structure which envelops said capillary column and is coaxial with it, means to directly heat said column, means to detect the temperature of said column and one or more electrically insulating

covering elements, characterized in that said tubular structure comprises a plurality of tubular meshes each formed of a plurality of filaments woven together. See figure 1 and respective portions of the specification. Figure 1 shows a capillary column (10), which is enveloped by a tubular mesh (20) and a tubular sheath (30). Together the tubular mesh (20) and tubular sheath (30) comprise a tubular structure, as broadly recited in the claim. As can be seen in figures 1 and 2, the capillary column (10) is coaxial with the tubular structure (20, 30). As disclosed in page 7 lines 19 – 25, the tubular mesh (20) is made of an electrically conductive material and can directly heat the column through resistive heating. Additionally, the tubular mesh (20) can also be used as a sensor to determine the temperature of the column. The tubular sheath (30) is an insulating material made from weaving together filaments of electrically insulating material. Since both the tubular mesh (20) and tubular sheath (30) are made from a plurality of filaments woven together, the tubular structure can be considered a plurality of tubular meshes each formed from a plurality of filaments woven together.

In regard to claim 2, as discussed above the tubular mesh (20) is made from an electrically conductive material and is used to heat the column. In page 6 lines 15 – 18, the tubular mesh is disclosed to be made by weaving together a plurality of filaments.

In regard to claim 4, as discussed above the tubular sheath (30) comprises a tubular mesh formed of filaments of electrically insulating material woven together, making it an electrically insulating covering.

In regard to claim 5, the tubular mesh (20) is the innermost mesh of the plurality of coaxial tubular meshes. As shown in figure 1, the inner surface of the tubular mesh (20) is in close contact with the outer surface of the capillary column (10).

In regard to claim 6, as shown in figure 1, the tubular sheath (30), which is an insulating cover material as discussed above, is the outer most tubular mesh of the plurality of meshes.

In regard to claim 7, as disclosed in page 4 lines 5 – 9, in an alternative embodiment, the column can be made from a conductive material with an electrically insulating material surrounding it. In this embodiment, the electrically insulating covering material constitutes the innermost tubular mesh of the plurality of coaxial tubular meshes.

In regard to claim 9, as disclosed in page 4 lines 3 and 4, the capillary column is to be made from an electrically insulating material, such as fused silica.

In regard to claim 10, as discussed above, an alternative embodiment is listed where the capillary column is made of a conductive material.

In regard to claim 11, as discussed above, the means to heat the column and to detect the temperature of the column are provided by the tubular mesh (20). Since the tubular mesh is an electrically conductive material, the means to heat the column and to detect its temperature are constituted in an electrically conductive material.

In regard to claims 13 and 14, as disclosed above, the chromatography column, as shown in figure 1, comprises a capillary column (10) and an electrically conductive tubular mesh (20), which directly heats the column and detects its temperature. Also as

discussed above, the tubular mesh (20) is made from a plurality of electrically conductive filaments that are woven together. Inherently there are a pre-established number of filaments that would be used. Also, inherently the number of filaments used would determine the resistance over a certain column length.

In regard to claim 16, as disclosed above, the heating of the column and the detecting of the columns temperature are both performed by the tubular mesh (20). Therefore the electrically conductive means to heat the column coincides with the electrically conductive means to detect the temperature of the column.

In regard to claim 17, the tubular mesh (20) is disclosed to be made of a singular electrically conductive material. Inherently all the filaments have to be the same material in order for the entire tubular mesh to be one material.

Allowable Subject Matter

4. Claims 3, 8, 12, 15, 18, and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

5. The following is a statement of reasons for the indication of allowable subject matter:

In regard to claims 3 and 15, the examiner did not find any prior art that taught or suggested a chromatography column with an electrically conductive tubular mesh heating element where the tubular mesh is made in part by electrically conductive filaments and in part by electrically insulating filaments.

In regard to claim 8, the examiner did not find any prior art that taught or suggested a chromatography column having an electrically insulating covering made from woven filaments interposed between at least two other tubular meshes made from woven filaments.

In regard to 12, the examiner did not find any prior art that taught or suggested a chromatography column with two separate tubular meshes of electrically conducting material, where one heats the column and the other detects the column temperature.

In regard to claims 18 and 19, the examiner did not find any prior art that taught or suggested a chromatography column with tubular mesh heating elements or with tubular mesh insulating elements made from woven filaments, and where all the filaments have the same diameter.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Roundbehler et al. discloses a capillary column with direct heating means and a woven insulating sleeve.

Cates et al. discloses a capillary column with a direct heating and insulating layer.

Mustacich et al. discloses a capillary column with an insulating cover and an insulated wire for heating.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert A. Clemente whose telephone number is (571) 272-1476. The examiner can normally be reached on M-F, 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Smith Duane can be reached on (571) 272-1166. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Robert A Clemente
Examiner
Art Unit 1724

RAC

DUANE SMITH
PRIMARY EXAMINER

D. Smith
12-13-06